

AMENDMENTS TO THE CLAIMS

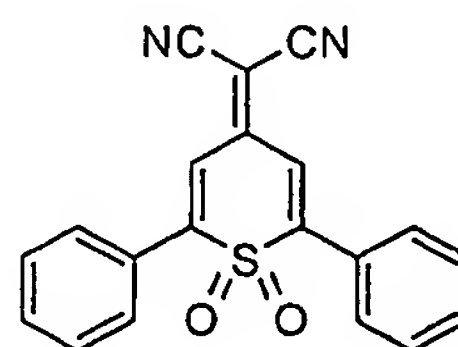
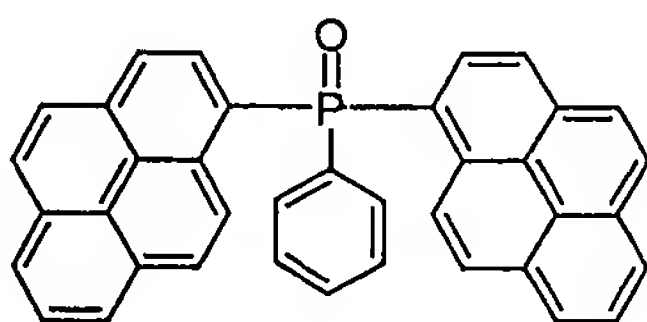
1. (Original) Electronic device comprising cathode, anode and at least one organic layer, characterised in that the organic layer comprises at least one defined compound A containing the chemical structural unit $Y=X$, where the following applies to the symbols used:

Y is on each occurrence, identically or differently, P, As, Sb, Bi, S, Se or Te;

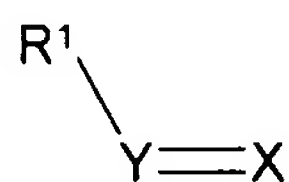
X is on each occurrence, identically or differently, O, S, Se, Te or NR;

R is on each occurrence, identically or differently, an organic radical having 1 to 22 carbon atoms or OH or NH_2 ;

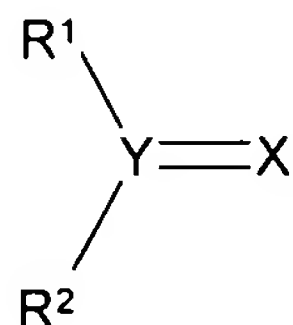
with the proviso that the compound A has a molecular weight of ≥ 150 g/mol and $\leq 10,000$ g/mol and that the device comprises no phosphorescent emitters; and furthermore with the proviso that the following compounds are excluded from the invention:



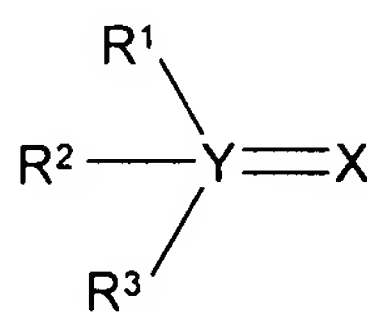
2. (Original) Electronic device according to Claim 1, characterised in that it comprises a compound A of the formula (1) to (4) (scheme 1)



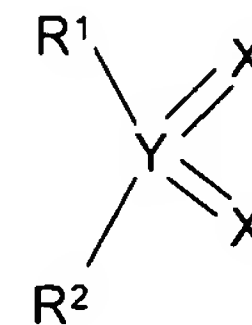
Formula (1)



Formula (2)



Formula (3)



Formula (4)

(Scheme 1)

where the symbols used have the following meaning:

Y is on each occurrence, identically or differently, P, As, Sb or Bi in formulae (1) and (3) and S, Se or Te in formulae (2) and (4);

X is on each occurrence, identically or differently, NR^4 , O, S, Se or Te;

$\text{R}^1, \text{R}^2, \text{R}^3$ is on each occurrence, identically or differently, $\text{N}(\text{R}^4)_2$, a straight-chain, branched or cyclic alkyl group having 1 to 40 C atoms, which may be substituted by R^5 or also unsubstituted, where one or more non-adjacent $-\text{CH}_2-$ groups may be replaced by $-\text{R}^6\text{C}=\text{CR}^6-$, $-\text{C}\equiv\text{C}-$, $\text{Si}(\text{R}^6)_2$, $\text{Ge}(\text{R}^6)_2$, $\text{Sn}(\text{R}^6)_2$, $\text{C}=\text{O}$, $\text{C}=\text{S}$, $\text{C}=\text{Se}$, $\text{C}=\text{NR}^6$, $-\text{O}-$, $-\text{S}-$, $-\text{NR}^6-$ or $-\text{CONR}^6-$ and where one or more H atoms may be replaced by F, Cl, Br, I, CN or NO_2 ; a plurality of radicals R^1, R^2 and/or R^3 here may with one another form a mono- or polycyclic, aliphatic or aromatic ring system;

or an aromatic or heteroaromatic system having 1 to 40 aromatic C atoms, which may be substituted by one or more radicals R^5 , where a plurality of substituents R^1, R^2 and/or R^3 may with one another form a mono- or polycyclic, aliphatic or aromatic ring system,

or an aromatic or heteroaromatic system having 1 to 40 aromatic C atoms which is bonded via a divalent group $-\text{Z}-$, where one or more H atoms may be replaced by F, Cl, Br or I or which may be substituted by one or more radicals R^5 ; a plurality of substituents R^1, R^2 and/or R^3 here may define a further mono- or polycyclic, aliphatic or aromatic ring system;

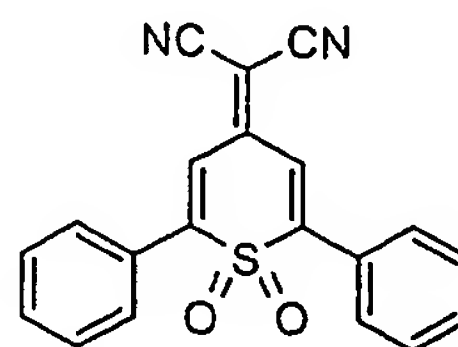
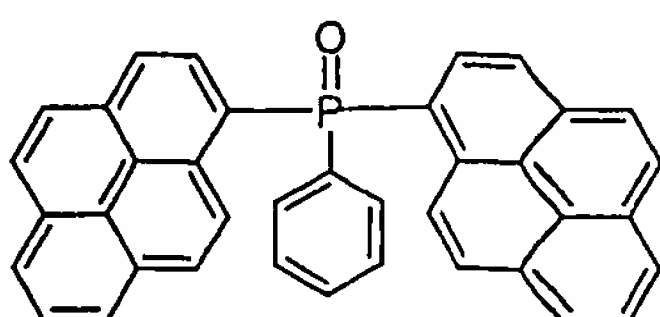
R^4 is on each occurrence, identically or differently, a straight-chain, branched or cyclic alkyl or alkoxy chain having 1 to 22 C atoms, in which, in addition, one or more non-adjacent C atoms may be replaced by $-\text{R}^6\text{C}=\text{CR}^6-$, $-\text{C}\equiv\text{C}-$, $\text{Si}(\text{R}^6)_2$, $\text{Ge}(\text{R}^6)_2$, $\text{Sn}(\text{R}^6)_2$, $-\text{NR}^6-$, $-\text{O}-$, $-\text{S}-$, $-\text{CO}-$, $-\text{CO}-\text{O}-$, $-\text{O}-\text{CO}-\text{O}-$ and where one or more H atoms may be replaced by fluorine, or is an aryl, heteroaryl or an aryloxy group having 1 to 40 C atoms, which may also be substituted by one or more radicals R^6 , or OH, NH_2 , $\text{NH}(\text{R}^5)$ or $\text{N}(\text{R}^5)_2$;

R^5 is on each occurrence, identically or differently, R^4 or CN, $\text{B}(\text{R}^6)_2$ or $\text{Si}(\text{R}^6)_3$;

R^6 is on each occurrence, identically or differently, H or an aliphatic or aromatic hydrocarbon radical having 1 to 20 C atoms;

Z is on each occurrence, identically or differently, a conjugated radical having 1 to 40 C atoms, where one or more C atoms may be substituted by a radical R^5 or halogen;

with the proviso that the molecular weight of the compound A is greater than 150 g/mol and less than 10,000 g/mol; and furthermore with the proviso that the following compounds are excluded from the invention:



3. (Currently amended) Electronic device according to Claim 1 ~~and/or 2~~, characterised in that Y stands for P or S.
4. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 3~~ claim 1, characterised in that X stands for O.
5. (Currently amended) Electronic device according to ~~one or more of Claims 2 to 4~~ claim 1, characterised in that at least one of the radicals R^1 , R^2 and/or R^3 stands for an aromatic or heteroaromatic system.
6. (Currently amended) Organic electronic device according to ~~one or more of Claims 1 to 5~~ claim 2, characterised in that the compound A contains more than one unit $Y=X$ or more than one unit of the formulae (1) to (4).
7. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 6~~ claim 2, characterised in that the compound of the formulae (1) to (4) does not have a planar structure.
8. (Original) Electronic device according to Claim 7, characterised in that at least one of the substituents R^1 , R^2 , R^3 and/or R^4 contains at least one sp^3 -hybridised carbon, silicon, germanium and/or nitrogen atom.

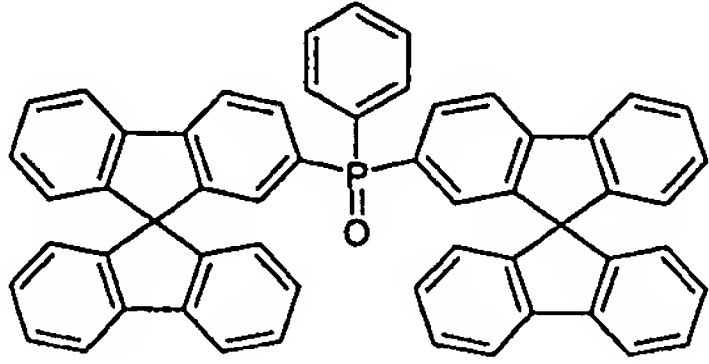
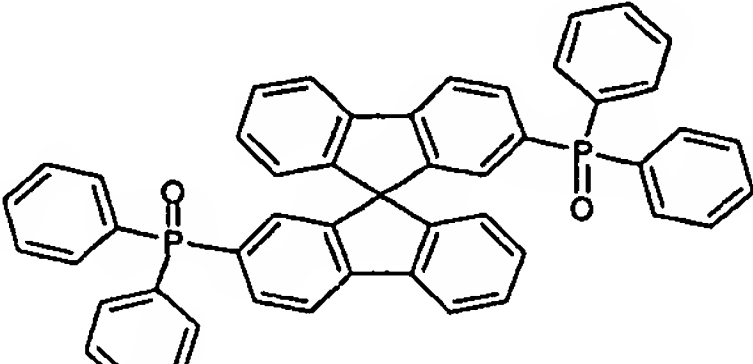
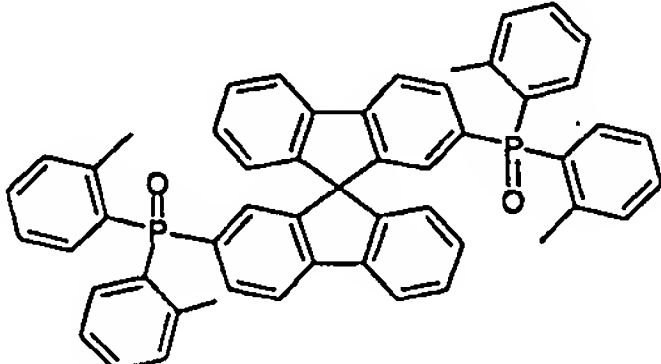
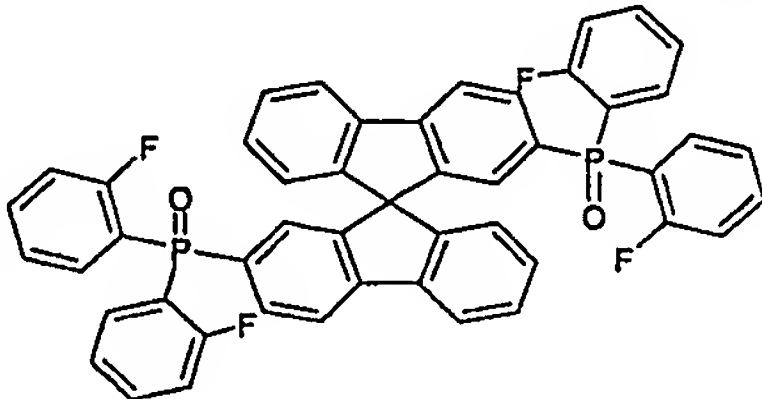
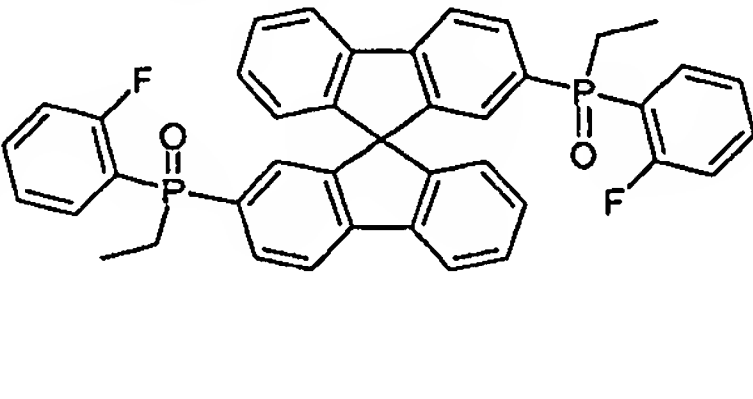
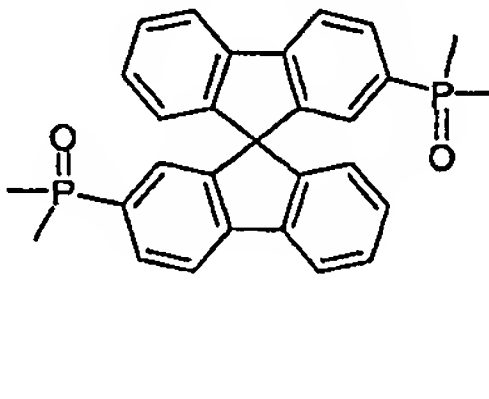
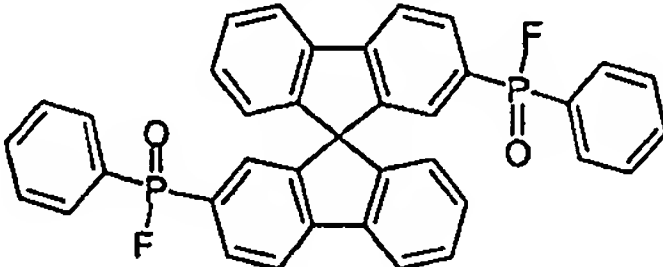
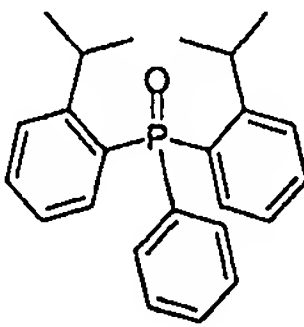
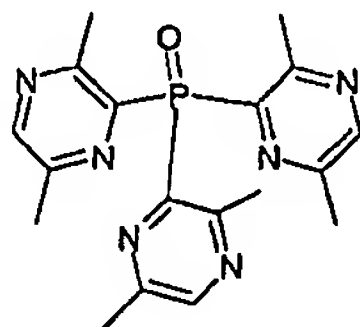
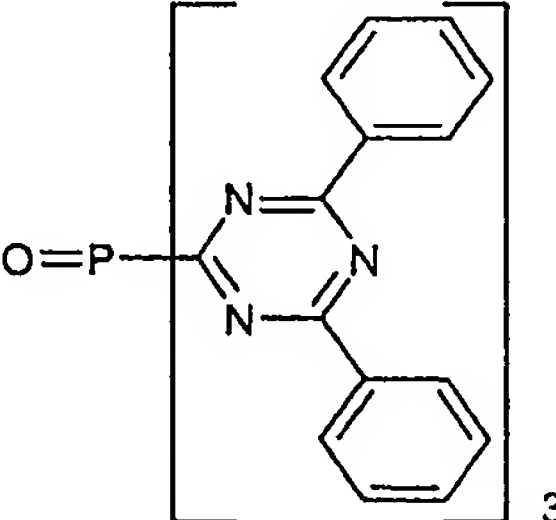
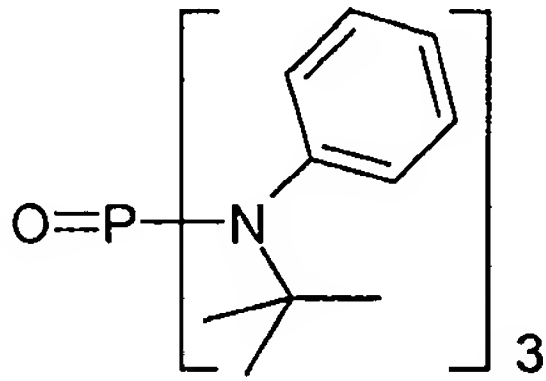
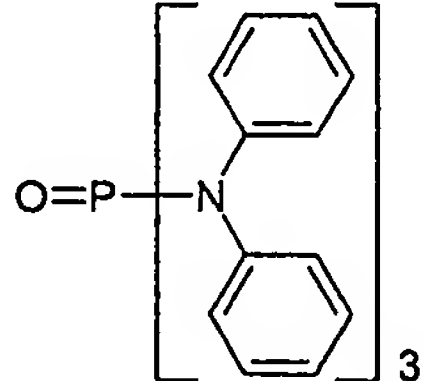
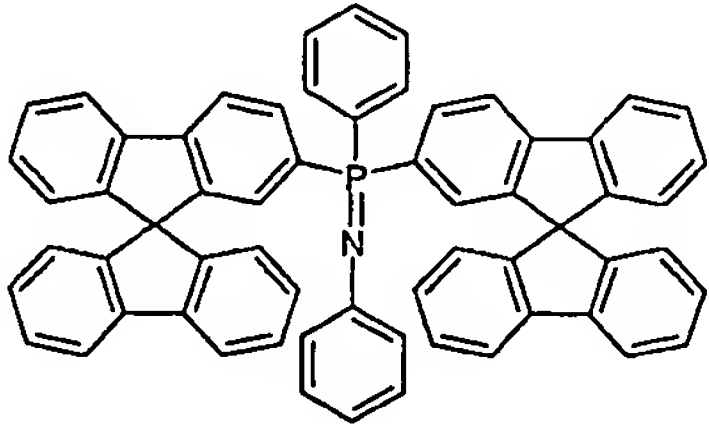
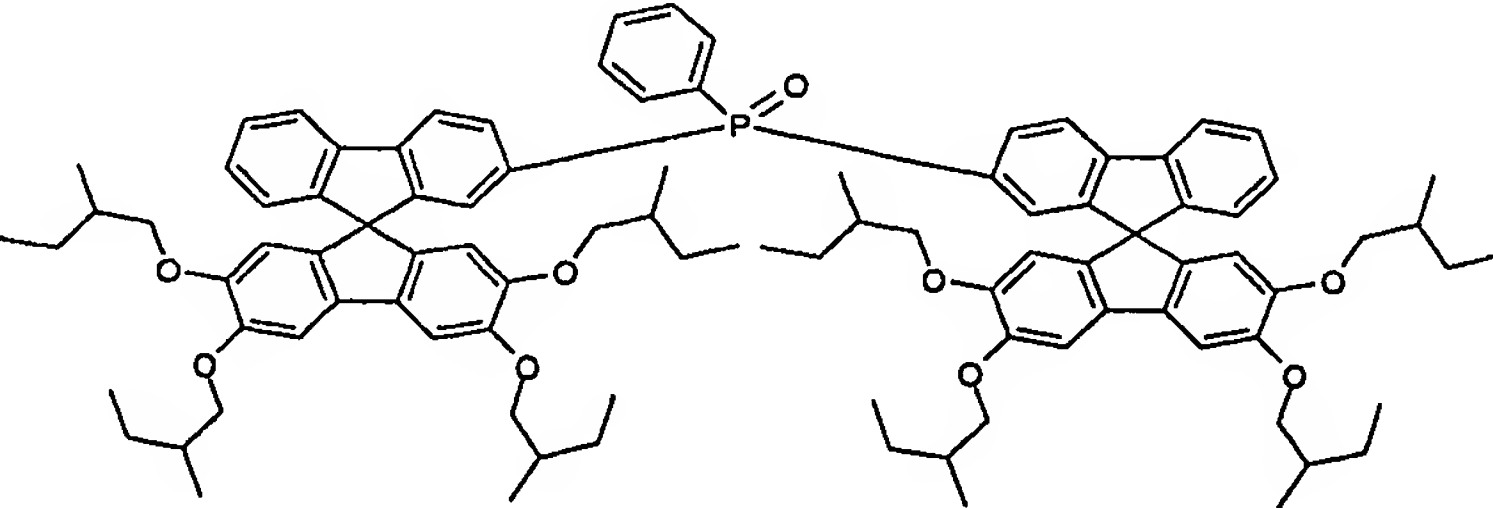
9. (Original) Electronic device according to Claim 8, characterised in that at least one of the sp^3 -hybridised atoms is a secondary, tertiary or quaternary atom.
10. (Original) Electronic device according to Claim 9, characterised in that at least one of the sp^3 -hybridised atoms is a quaternary atom.
11. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 10~~ claim 1, characterised in that a 9,9'-spirobifluorene derivative, a 9,9-disubstituted fluorene derivative, a 6,6- and/or 12,12-di- or tetrasubstituted indenofluorene derivative, a triptycene derivative, a dihydrophenanthrene derivative or a hexaarylbenzene derivative is present in at least one of the radicals R^1 to R^4 .
12. (Original) Electronic device according to Claim 11, characterised in that a 9,9'-spirobifluorene derivative is present in at least one of the radicals R^1 to R^4 .
13. (Original) Electronic device according to Claim 7, characterised in that the non-planar radical R^1 or R^2 or R^3 represents a biaryl group.
14. cancelled
15. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 14~~ claim 1, characterised in that the compound A is amorphous and the glass transition temperature T_g of the compound A is greater than 100°C.
16. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 15~~ claim 1, characterised in that the compound A is employed as electron-transport material.
17. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 16~~ claim 1, characterised in that the layer comprising compound A consists of at least 50% of this compound.
18. (Original) Electronic device according to Claim 17, characterised in that the layer comprising compound A consists only of this compound as pure layer.

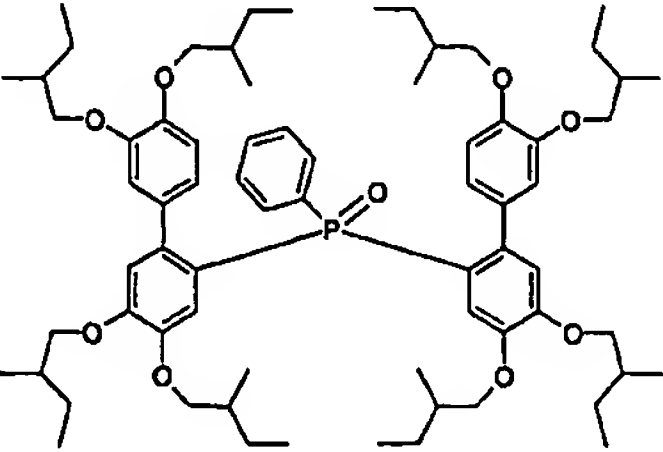
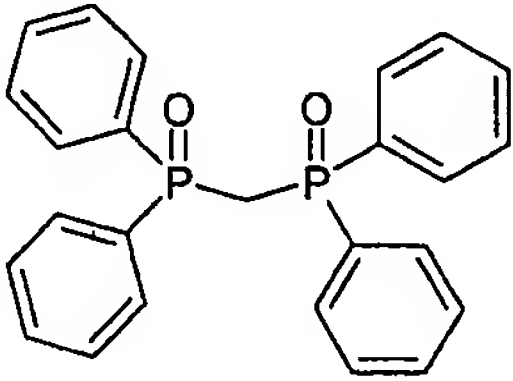
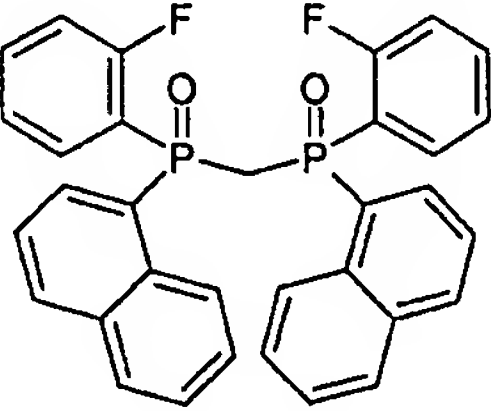
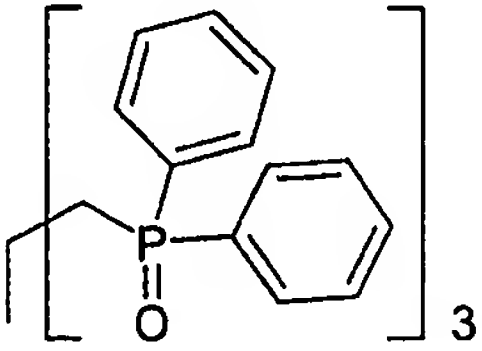
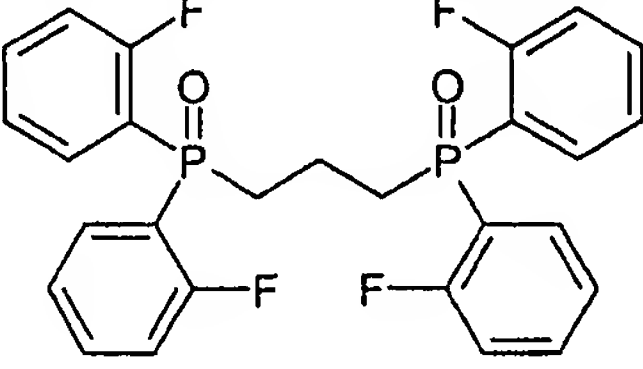
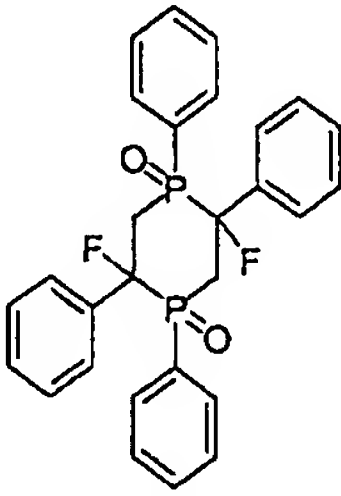
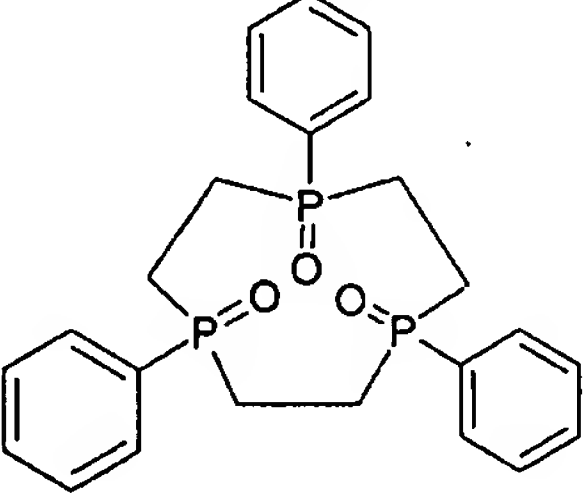
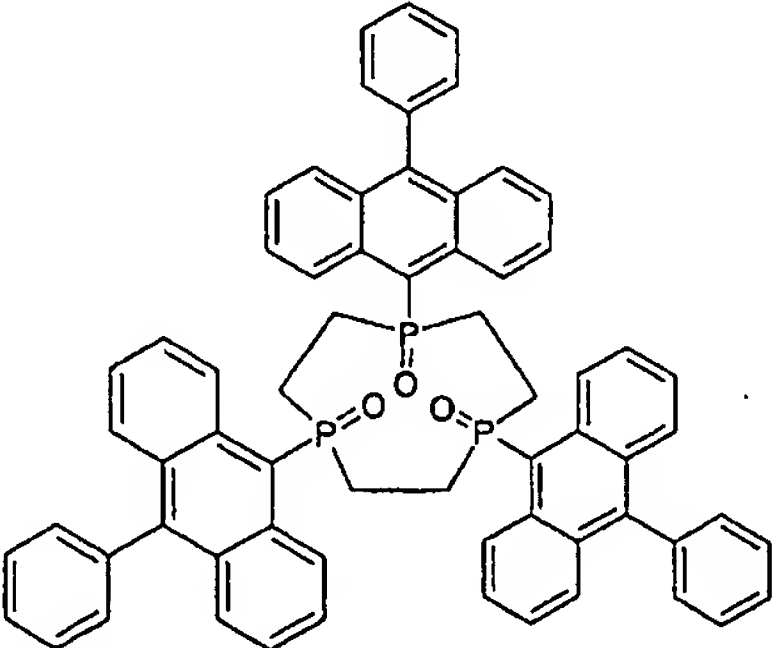
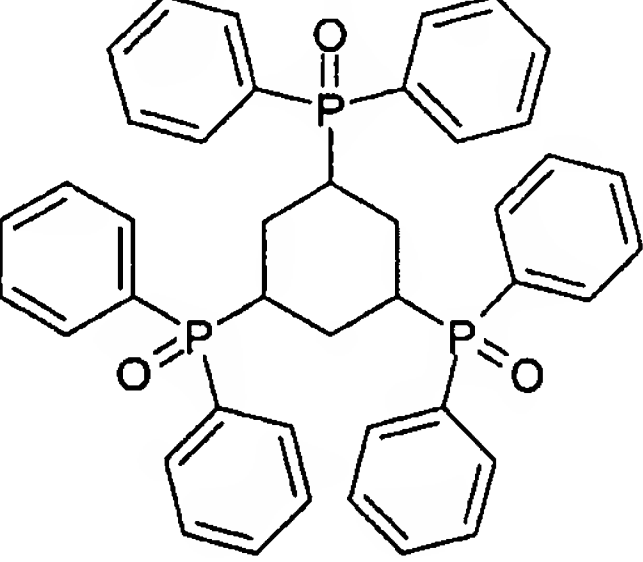
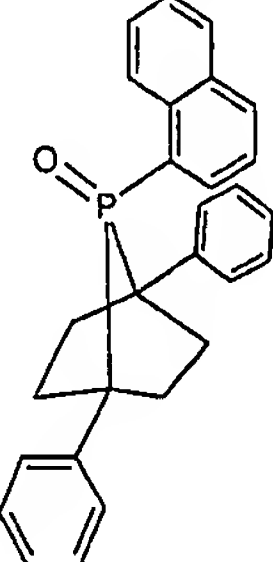
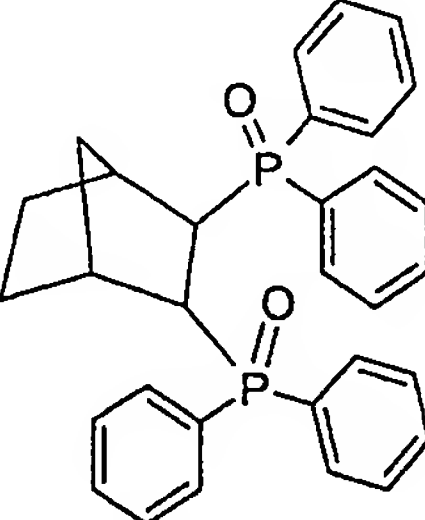
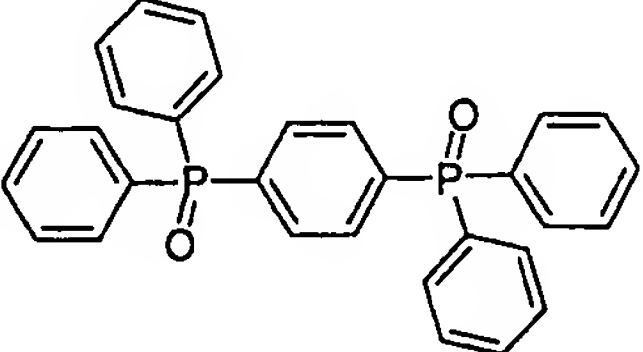
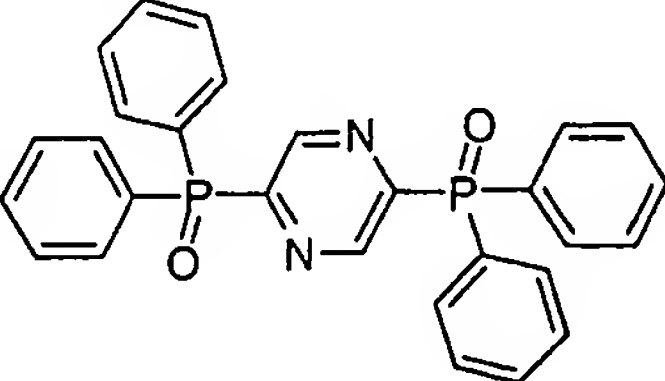
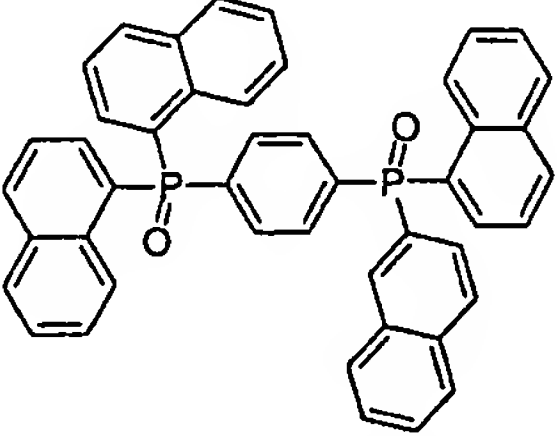
19. (Currently amended) Electronic devices according to ~~one or more of Claims 1 to 18~~ claim 1, ~~characterised in that they are~~ wherein in the electronic device is an organic electroluminescent ~~device devices~~, organic thin-film ~~transistors transistor~~, organic field-effect ~~transistors transistor~~, organic solar ~~cells cell~~, organic ~~photoreceptors photoreceptor~~ or organic ~~lasers laser~~.
20. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 19~~ claim 1, characterised in that further layers are present in addition to the layer comprising the compound A.
21. (Original) Electronic device according to Claim 20, characterised in that these further layers are selected from hole-injection layer, hole-transport layer, emission layer, hole-blocking layer, electron-transport layer and/or electron-injection layer.
22. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 21~~ claim 1, characterised in that at least one electron-transport layer comprising at least one compound A is present between the fluorescent emission layer and the cathode.
23. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 22~~ claim 1, characterised in that the emission layer comprises at least one fluorescent emitter and at least one electron-transport material, where the electron-transport material comprises at least one compound A.
24. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 23~~ claim 1, characterised in that both an electron-transport layer comprising at least one compound A and an emission layer comprising at least one compound A, which may be identical or different, are present.
25. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 24~~ claim 1, characterised in that the emission layer comprising the compound A is directly adjacent to the electron-injection layer or the cathode without the use of a separate electron-transport layer.

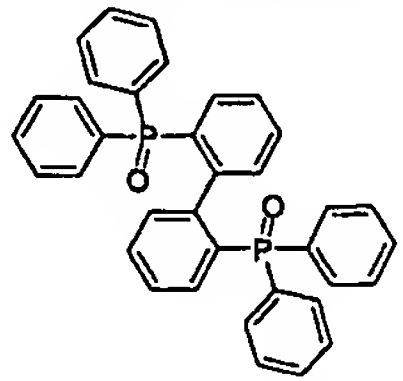
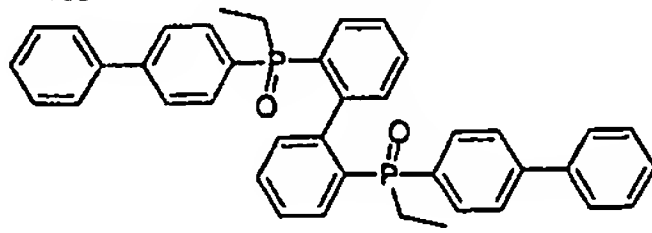
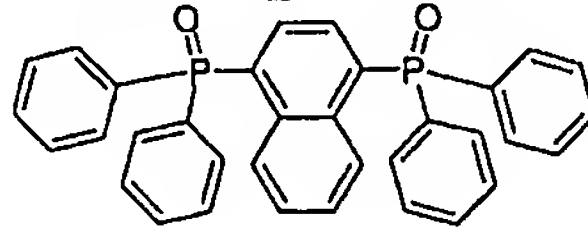
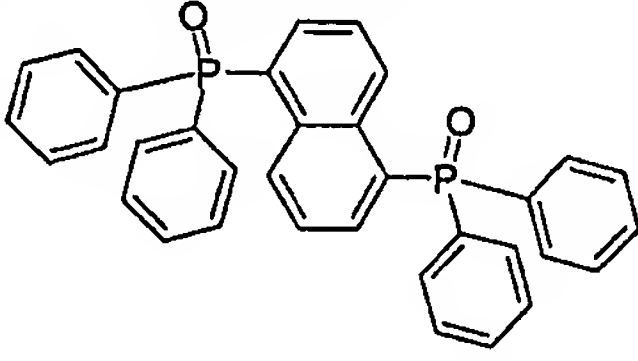
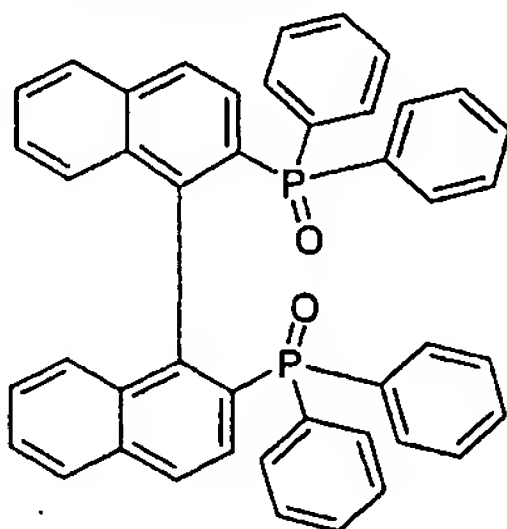
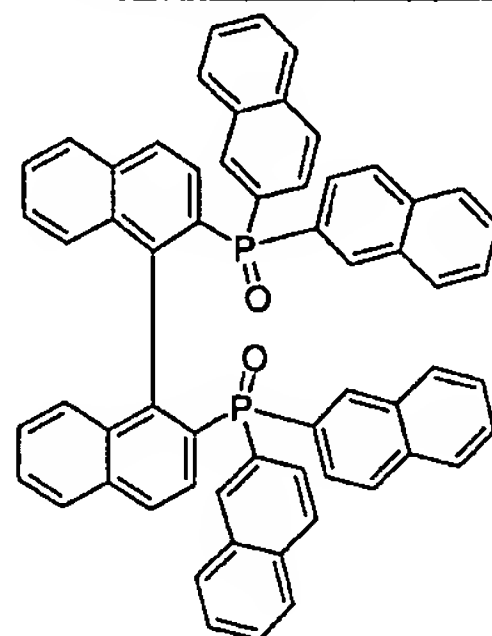
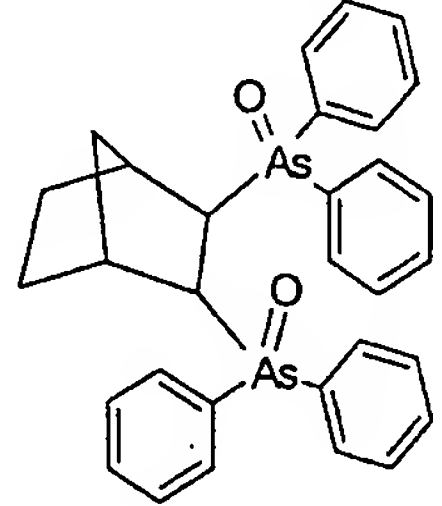
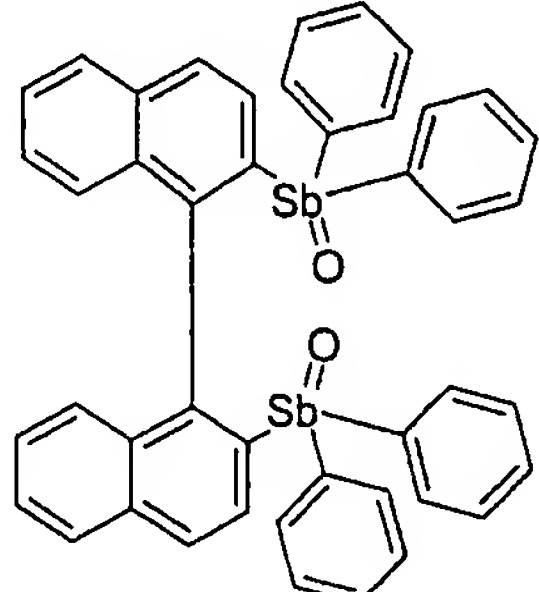
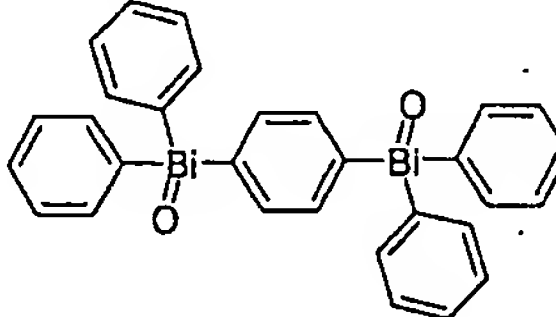
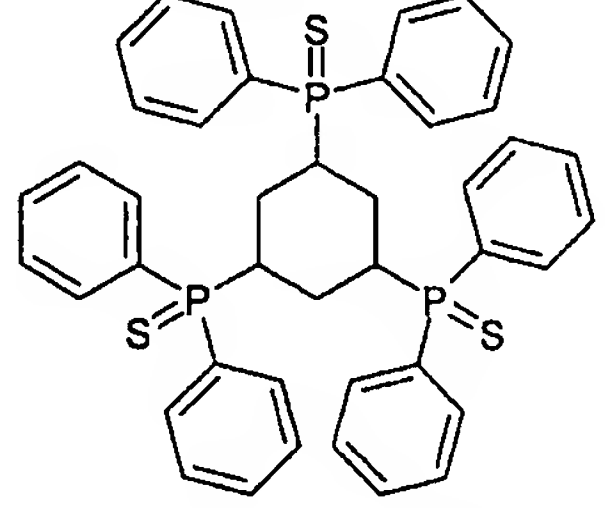
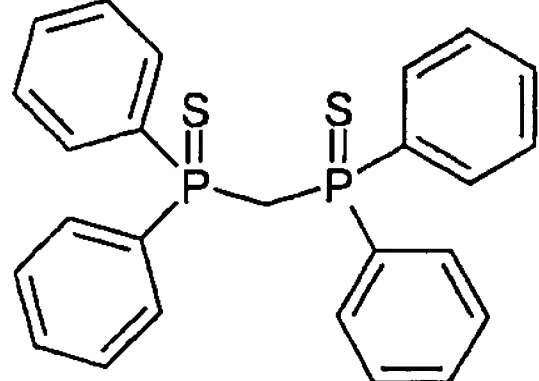
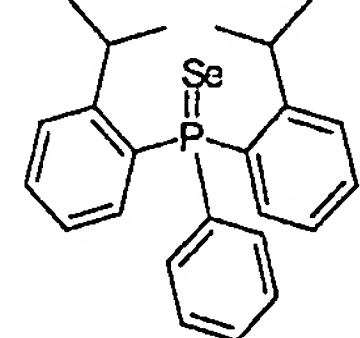
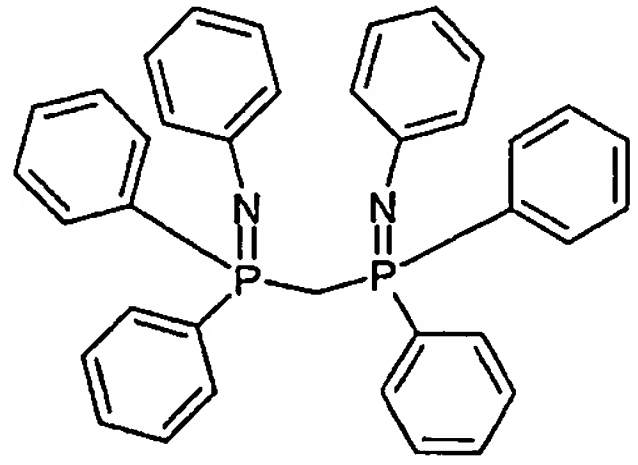
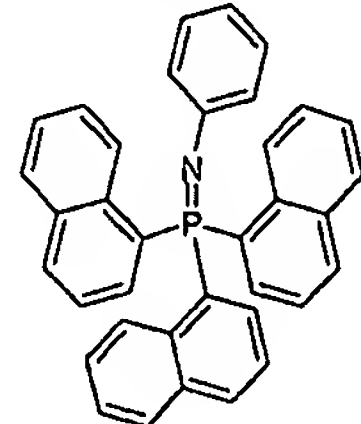
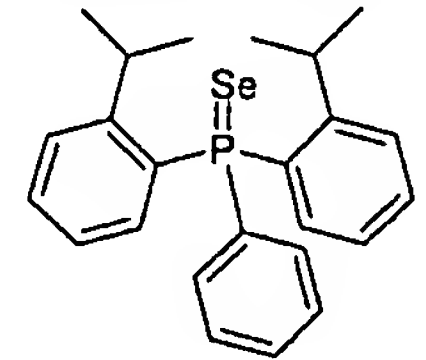
26. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 25~~ claim 1, characterised in that the emission layer comprising the compound A is directly adjacent to the hole-injection layer.

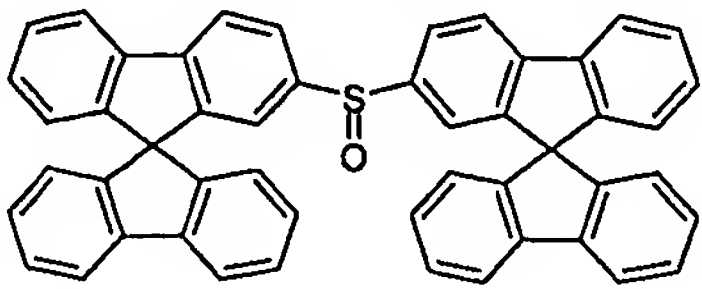
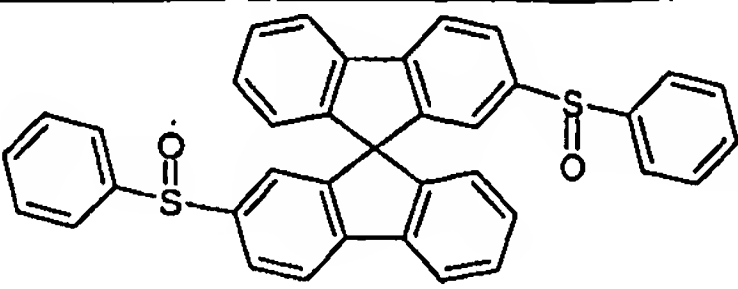
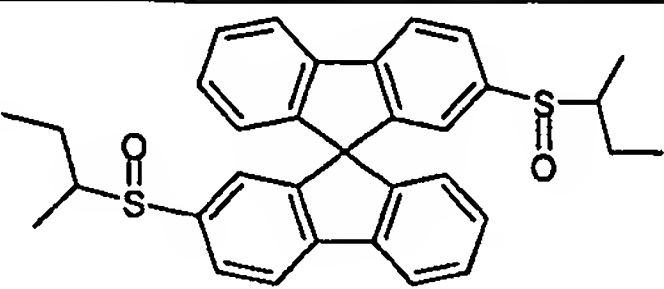
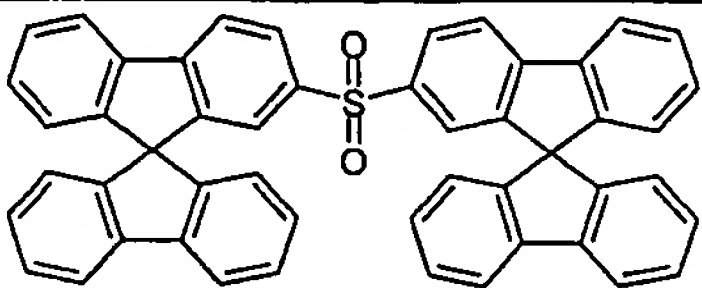
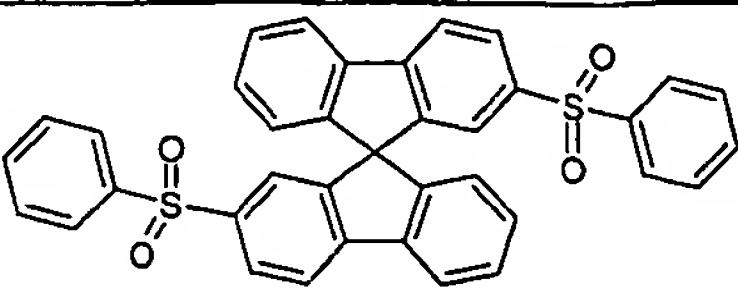
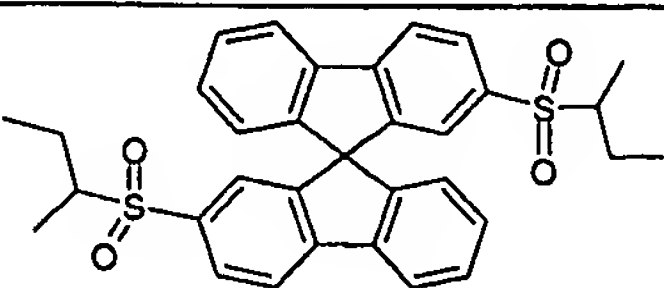
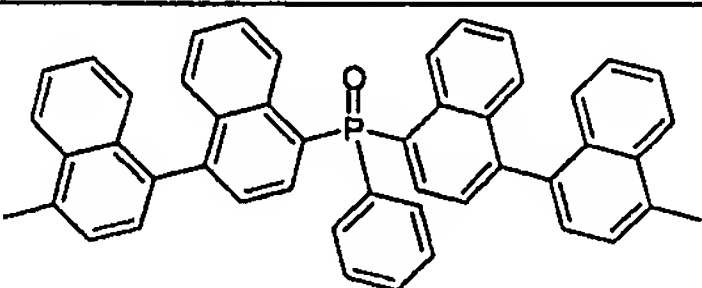
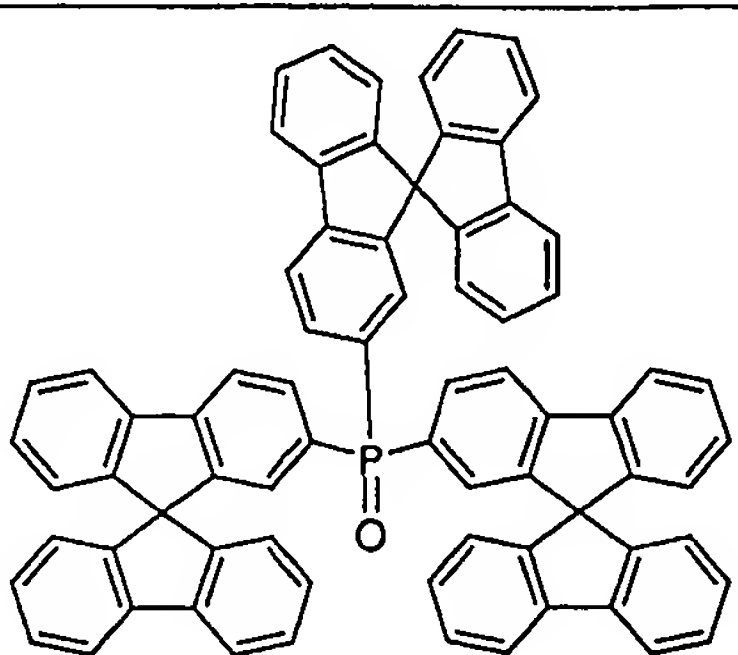
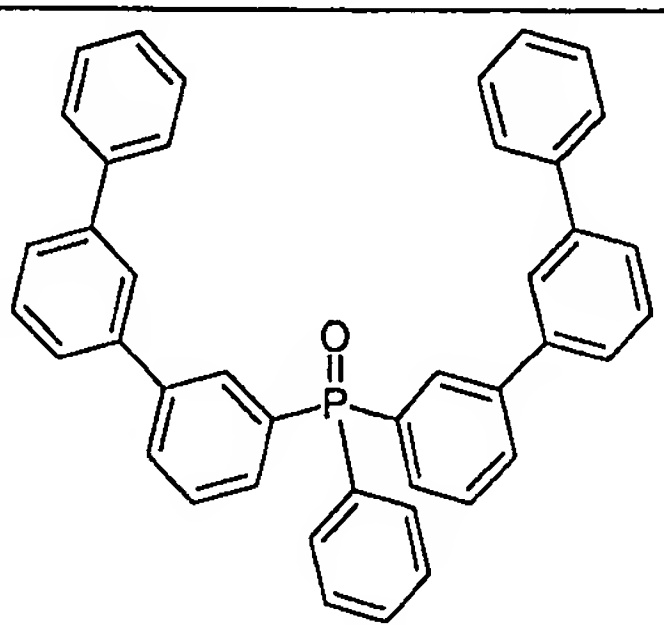
27. (Currently amended) Electronic device according to ~~one or more of Claims 1 to 26~~ claim 1, characterised in that it is an organic electroluminescent device in which the emitter(s) fluoresce(s) in the visible spectral region with one or more maxima between 380 nm and 750 nm on suitable excitation.

28. (New) Electronic device according to claim 2, characterised in that the compound of the formulae (1) to (4) is selected from the example structures 1 to 52

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| Example 1 | Example 2 | Example 3 |
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| Example 4 | Example 5 | Example 6 |
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| Example 7 | Example 8 | Example 9 |
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| Example 10 | Example 11 | Example 12 |
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| Example 13 | Example 14 | |

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| Example 15 | Example 16 | Example 17 |
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| Example 18 | Example 19 | Example 20 |
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| Example 21 | Example 22 | |
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| Example 23 | Example 24 | Example 25 |
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| Example 26 | Example 27 | Example 28 |

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| Example 29 | Example 30 | Example 31 |
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| Example 32 | Example 33 | Example 34 |
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| Example 35 | Example 36 | Example 37 |
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| Example 38 | Example 39 | Example 40 |
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| Example 41 | Example 42 | Example 43 |

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| Example 44 | Example 45 | Example 46 |
|  |  |  |
| Example 47 | Example 48 | Example 49 |
|  |  |  |
| Example 50 | Example 51 | Example 52 |